

Installation

<http://abs-models.org/installation/>

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Introduction

This tutorial guides you through getting the various tools comprising the ABS toolchain running. Some tools are platform-agnostic while some are running only on some platforms. We make an effort to get you up and running, no matter which platform you want to use!

After finishing this tutorial, you will be in a position to use and analyze ABS models, and to work through the other tutorials on offer.

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1 Use On-Line Tools

The simplest way to use the ABS tools is on-line, in the collaboratory. This means you only need a modern browser to start experimenting with ABS. The tools work best with Firefox and Chrome.

An introduction and link to the collaboratory can be found at <http://abs-models.org/laboratory/>.

2 Installation in a Virtual Machine

All tools are designed to run on Linux, although many also run on other systems. We provide a way to automatically set up a virtual machine with all tools running without requiring an online connection after the initial setup. All the tools needed are available free of charge or open source.

To begin, install VirtualBox from <https://www.virtualbox.org/wiki/Downloads> and Vagrant from <https://www.vagrantup.com/downloads.html>. VirtualBox lets you run virtual machines on your computer and is a way to run a different operating system or software that you do not want to install on your normal own machine. Vagrant is a program that lets a developer define a virtual machine configuration and create that exact machine on demand. We use Vagrant to configure all our tools.

Next, we need to set up the virtual machine by checking out the development sources available at <https://github.com/abstools/abstools>. If you do not have git installed on your machine yet, follow the instructions at <https://help.github.com/articles/set-up-git/>. Then, check out the abstools archive.

Finally, in the abstools directory, create the virtual machine by calling “vagrant up”, as in the following sequence of commands:

```
cd ~/Source
git clone https://github.com/abstools/abstools.git
cd abstools
vagrant up
```

The `vagrant up` command takes a while when called for the first time. At the end, the following message will appear:

```
==> default: Machine 'default' has a post 'vagrant up' message. This is a message
==> default: from the creator of the Vagrantfile, and not from Vagrant itself:
==> default:
==> default: Welcome to the ABS toolchain VM.
==> default:
==> default: Connect to the collaboratory at http://localhost:8888/
==> default:
==> default: Access the following additional tools with 'vagrant ssh'
==> default: (install Xming / XQuartz X server on Windows/Mac to use):
==> default:
==> default: - eclipse           Eclipse Mars with ABS plugins
==> default: - key-abs          Deductive verification tool
==> default: - emacs            Emacs with ABS mode
```

At this point, you can connect to the collaboratory at <http://localhost:8888/> even when offline. All other tools are available when you log in to the virtual machine with `vagrant ssh`.

3 Local Off-Line Installation

Many of the tools can be run from the command line. This chapter describes how to run various tools on a local machine.

3.1 Installing the ABS Compiler

To install the ABS compiler, install the Java 8 JDK, the ant build tool, and (recommended) the Erlang language (version 18 or later). Then, clone the git repository and build the compiler:

```
cd ~/Source
git clone https://github.com/abstools/abstools.git
cd abstools/frontend
ant
```

After a successful build, there is an `absc` shell script in the `abstools/frontend/bin/bash/` directory that invokes the ABS compiler. For Windows, there is `abstools/frontend/bin/win/absc.bat`.

3.2 Installing KeY-ABS

For a local installation of the KeY-ABS theorem prover, install Java 8. Then, download KeY-ABS from <http://www.key-project.org/key-abs/key-abs.zip>. Unzipping that downloaded file and double-clicking on the `key.jar` file should start KeY-ABS. To start from the command line, use:

```
java -jar key.jar
```

4 Editor Support

We provide support for Eclipse, Emacs and TextMate, with varying degrees of integration with the rest of the tool chain. For editing and running `abs` in eclipse, it is necessary to install the plugin from updates site or local from source. In Emacs you have to set the path to `abs-model.el`. For using TextMate you have to add `abs config` from source.